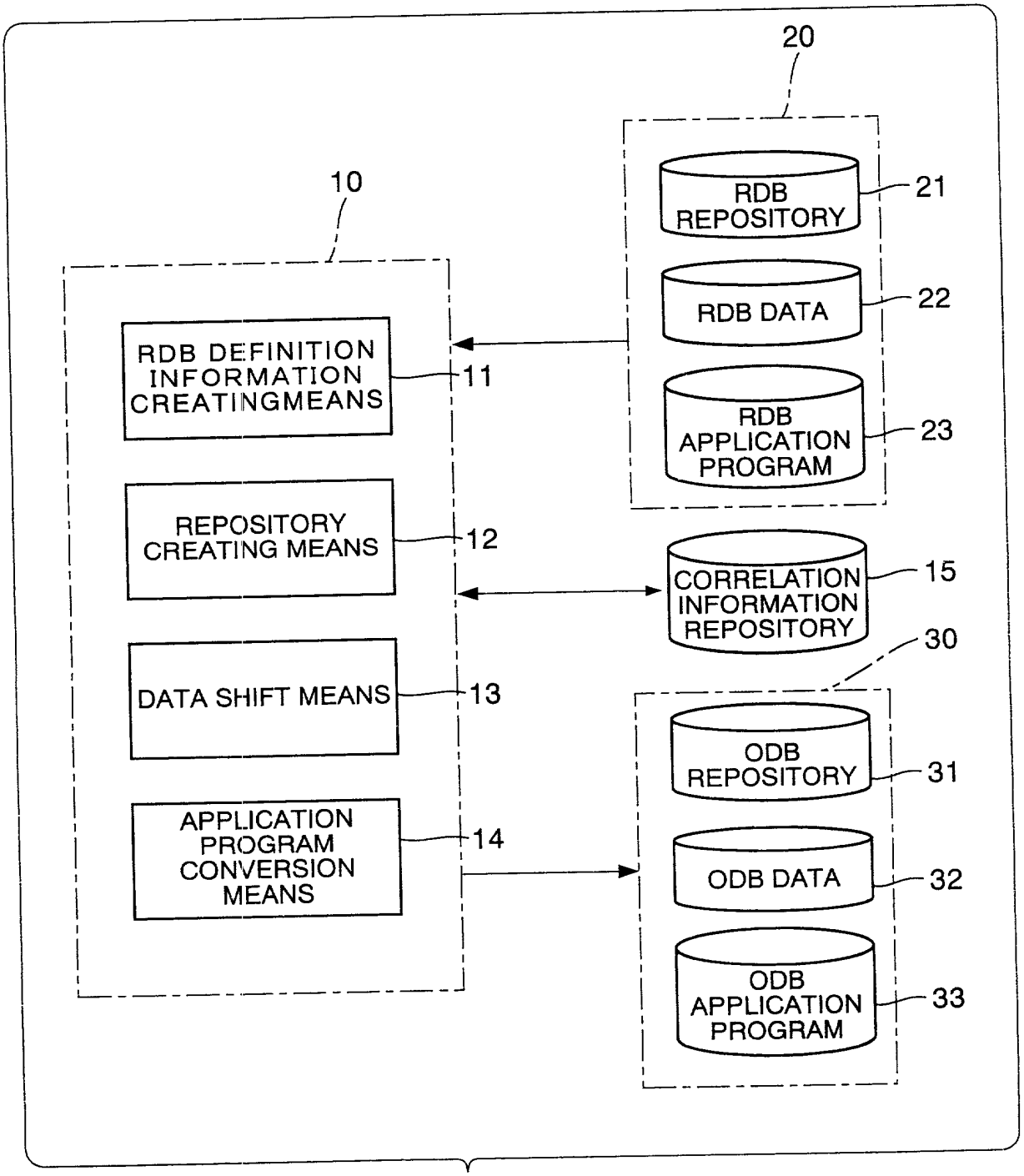
20
10
RDB REPOSITORY
21
RDB DATA
22
RDB APPLICATION PROGRAM
23
RDB DEFINITION INFORMATION CREATINGMEANS
11
REPOSITORY CREATING MEANS
12
CORRELATION INFORMATION REPOSITORY
15
30
DATA SHIFT MEANS
13
ODB REPOSITORY
31
APPLICATION PROGRAM CONVERSION MEANS
14
ODB DATA
32
ODB APPLICATION PROGRAM
33

Fig. 1

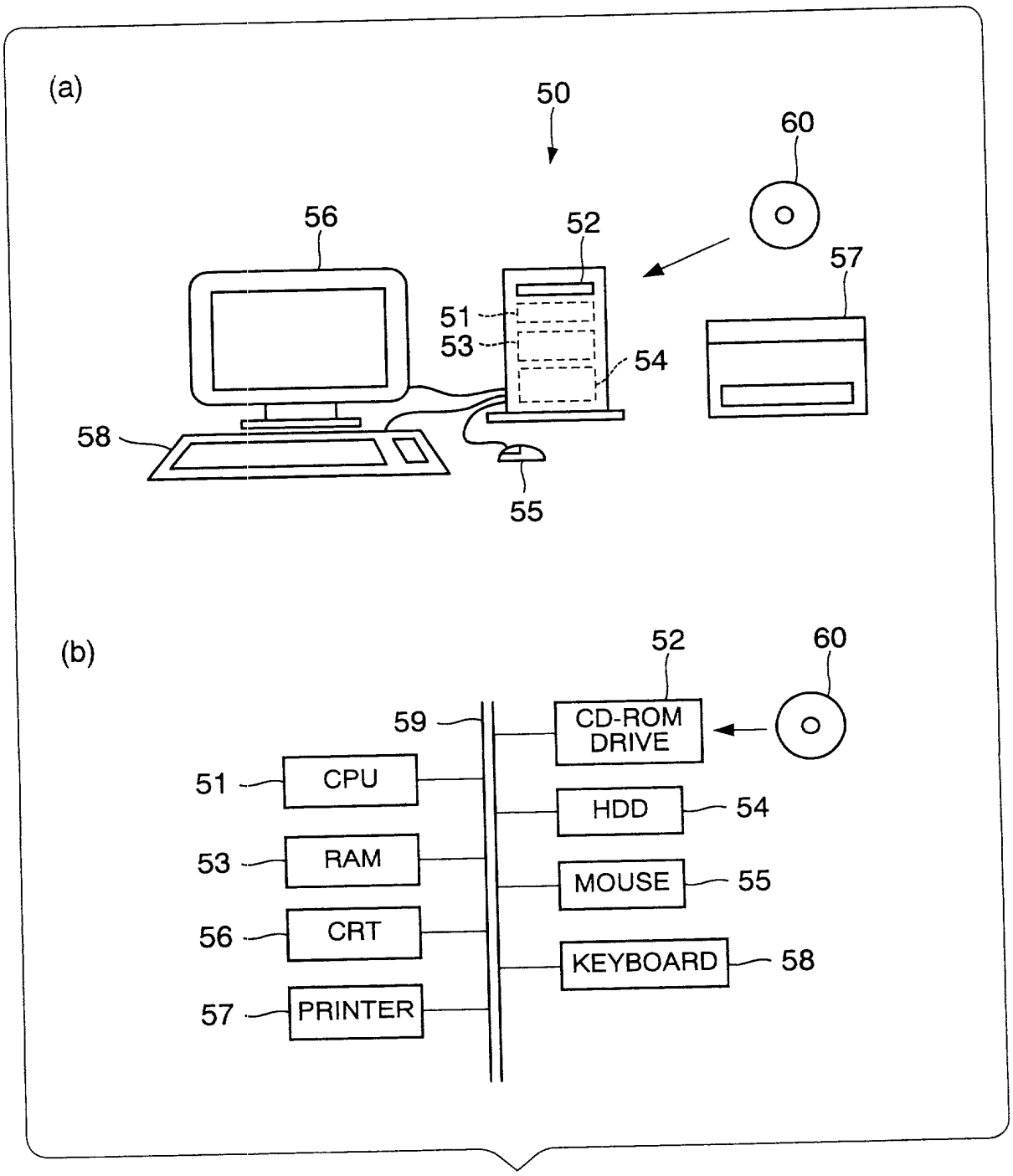
(a)
50
60
56
52
57
51
53
54
58
55
(b)
52
60
59
CD-ROM DRIVE
51
CPU
HDD
54
53
RAM
MOUSE
55
56
CRT
KEYBOARD
58
57
PRINTER

Fig. 2

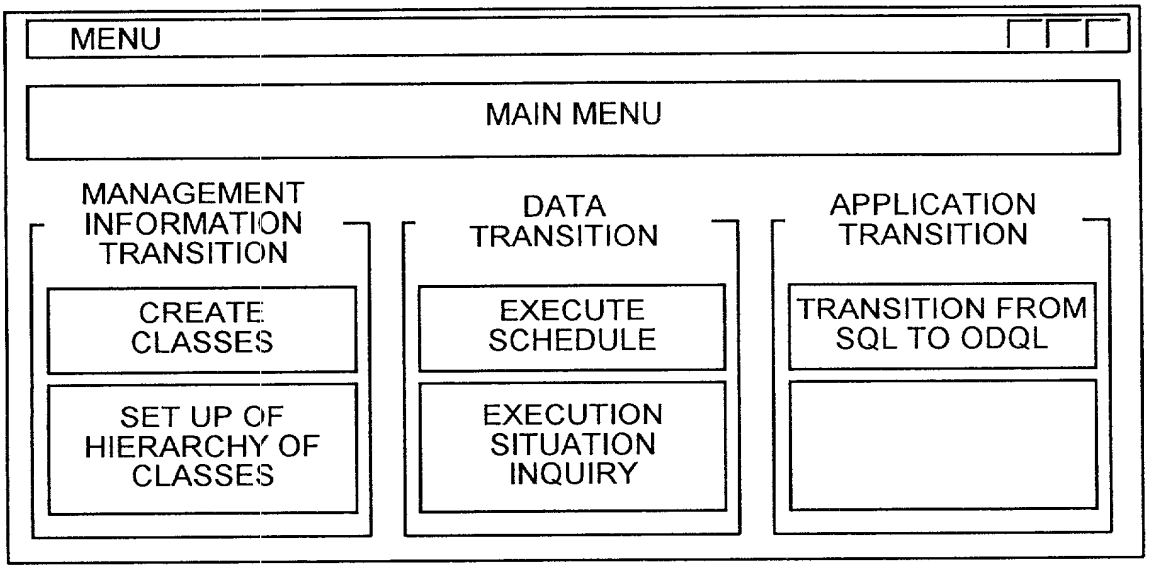

Fig. 3

FOSTER: EST5/2550

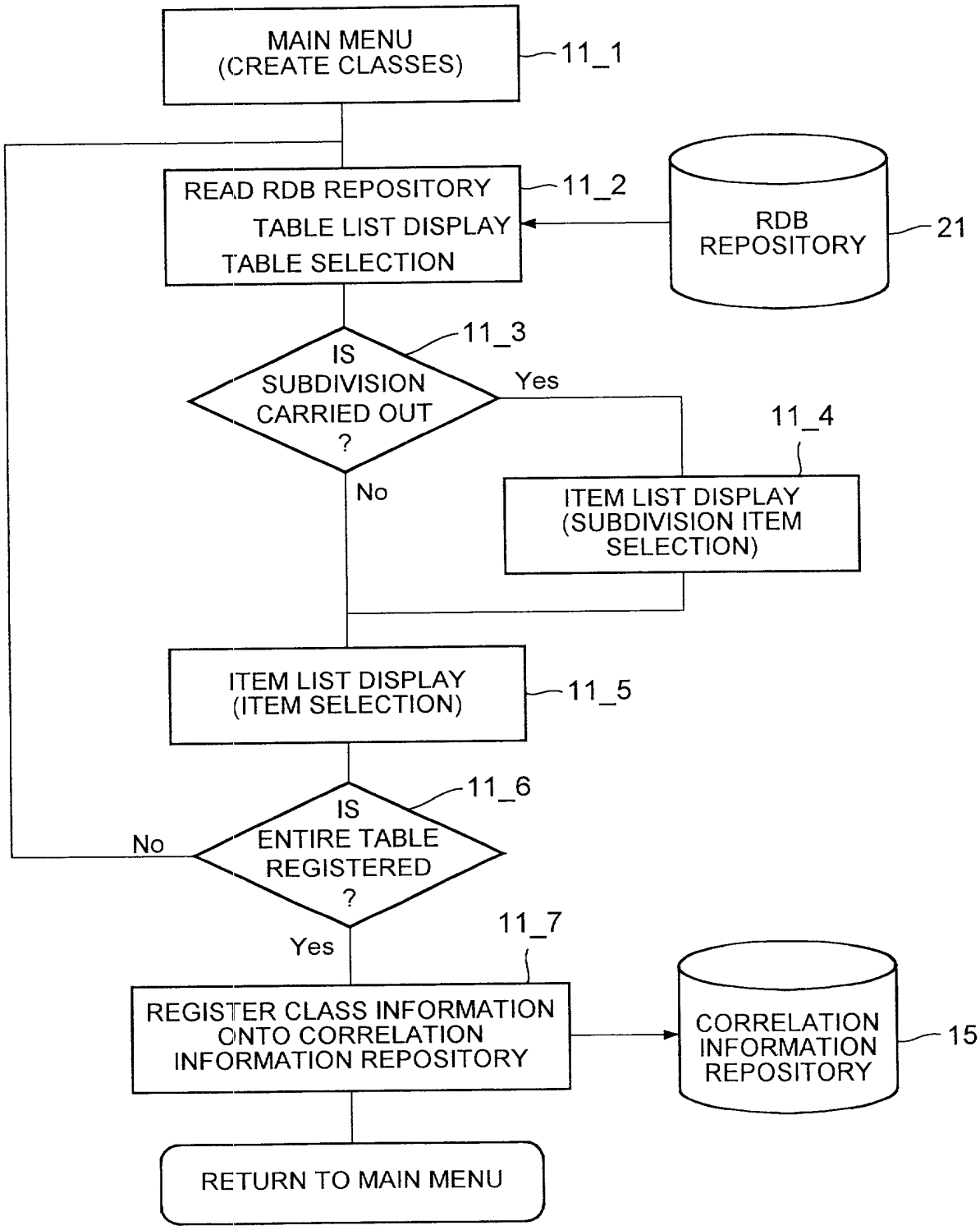
MAIN MENU
(CREATE CLASSES)
11_1
READ RDB REPOSITORY
TABLE LIST DISPLAY
TABLE SELECTION
11_2
RDB
REPOSITORY
21
IS
SUBDIVISION
CARRIED OUT
?
11_3
Yes
No
11_4
ITEM LIST DISPLAY
(SUBDIVISION ITEM
SELECTION)
ITEM LIST DISPLAY
(ITEM SELECTION)
11_5
IS
ENTIRE TABLE
REGISTERED
?
11_6
No
Yes
11_7
REGISTER CLASS INFORMATION
ONTO CORRELATION
INFORMATION REPOSITORY
CORRELATION
INFORMATION
REPOSITORY
15
RETURN TO MAIN MENU

Fig. 4

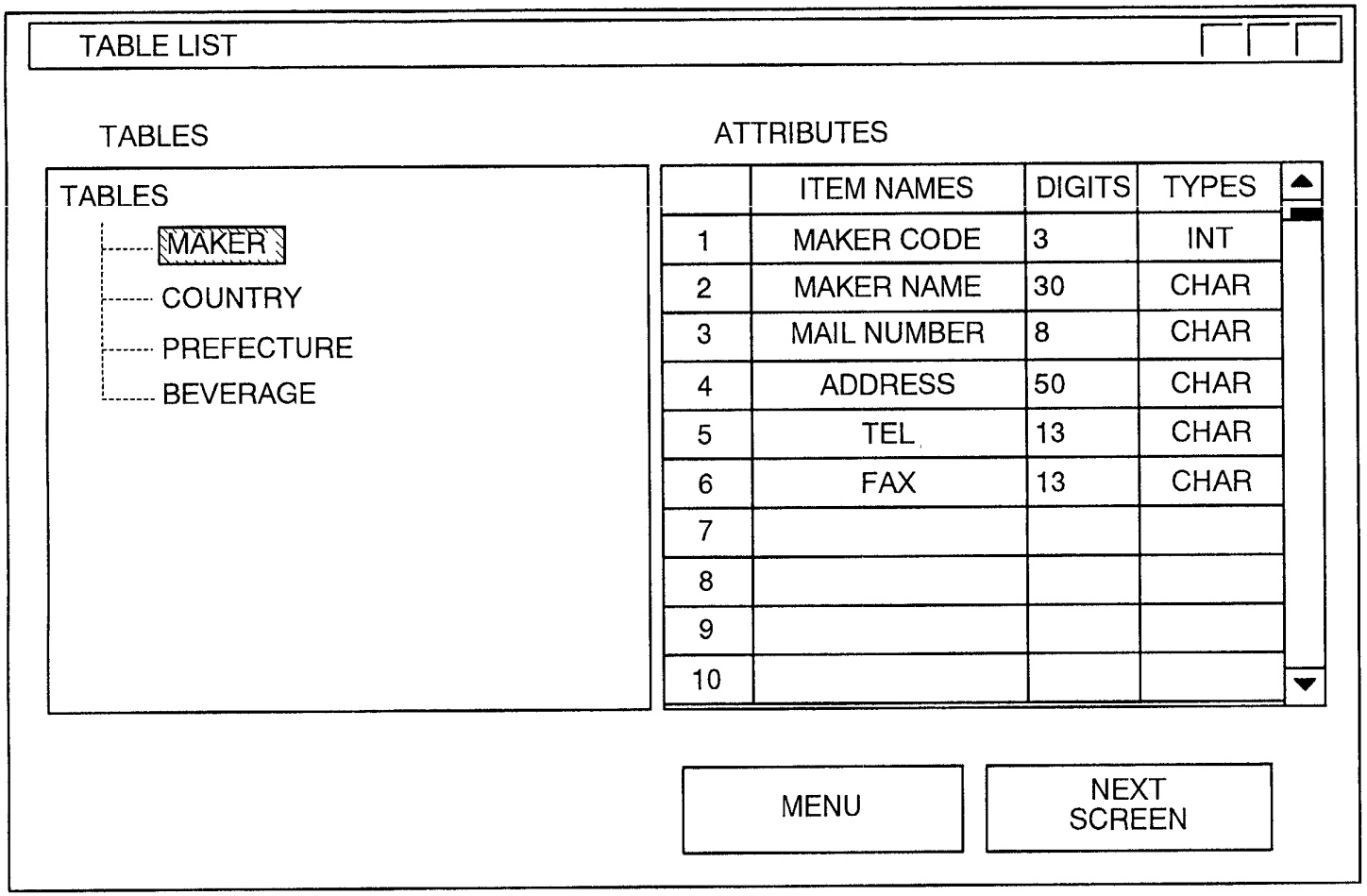
TABLE LIST
TABLES
ATTRIBUTES
TABLES
MAKER
COUNTRY
PREFECTURE
BEVERAGE
ITEM NAMES
DIGITS
TYPES
1 MAKER CODE 3 INT
2 MAKER NAME 30 CHAR
3 MAIL NUMBER 8 CHAR
4 ADDRESS 50 CHAR
5 TEL 13 CHAR
6 FAX 13 CHAR
7
8
9
10
MENU
NEXT SCREEN

Fig. 5

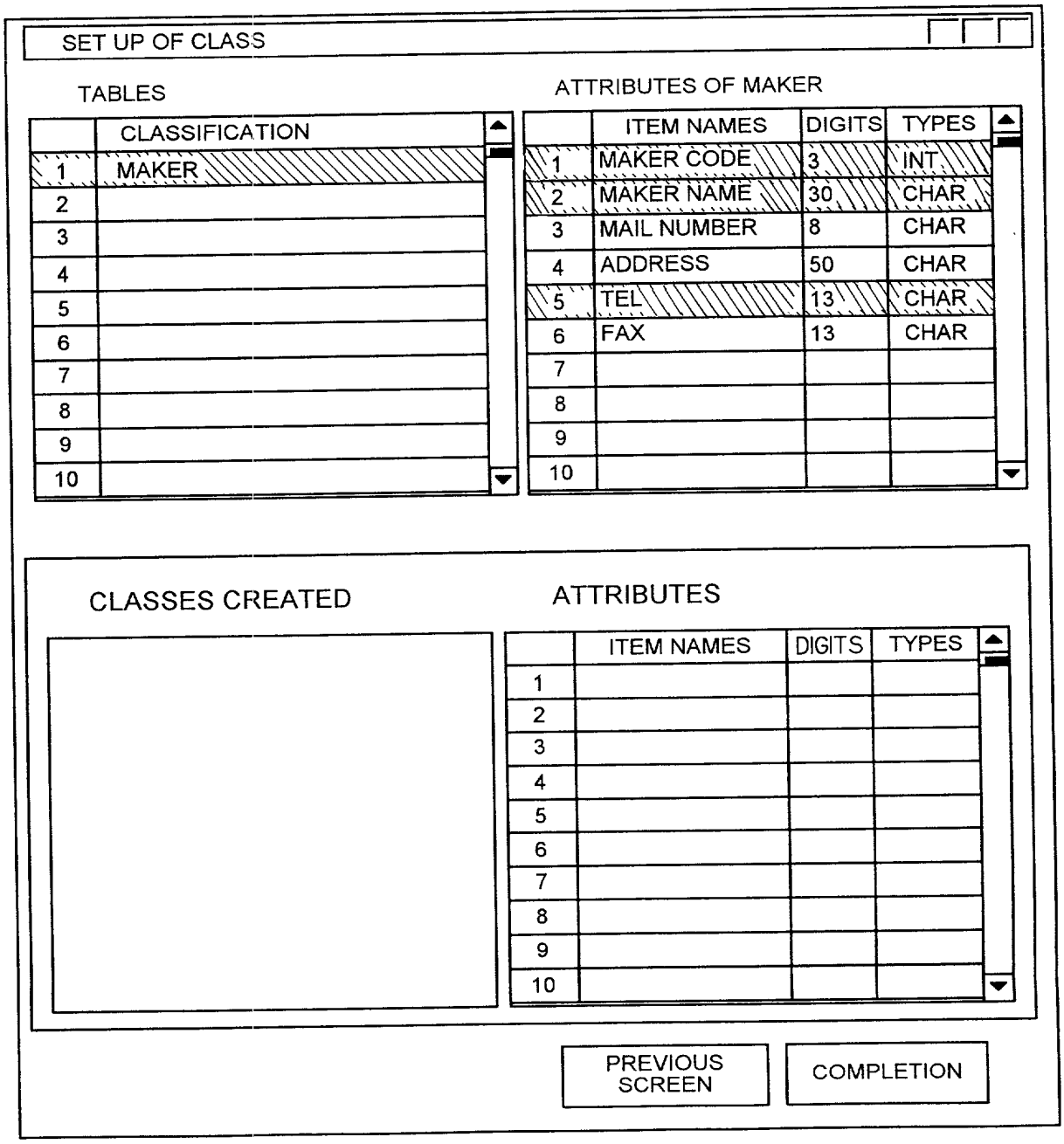
SET UP OF CLASS
TABLES
CLASSIFICATION
1 MAKER
2
3
4
5
6
7
8
9
10
ATTRIBUTES OF MAKER
ITEM NAMES | DIGITS | TYPES
1 MAKER CODE | 3 | INT
2 MAKER NAME | 30 | CHAR
3 MAIL NUMBER | 8 | CHAR
4 ADDRESS | 50 | CHAR
5 TEL | 13 | CHAR
6 FAX | 13 | CHAR
7
8
9
10
CLASSES CREATED
ATTRIBUTES
ITEM NAMES | DIGITS | TYPES
1
2
3
4
5
6
7
8
9
10
PREVIOUS SCREEN
COMPLETION

Fig. 6

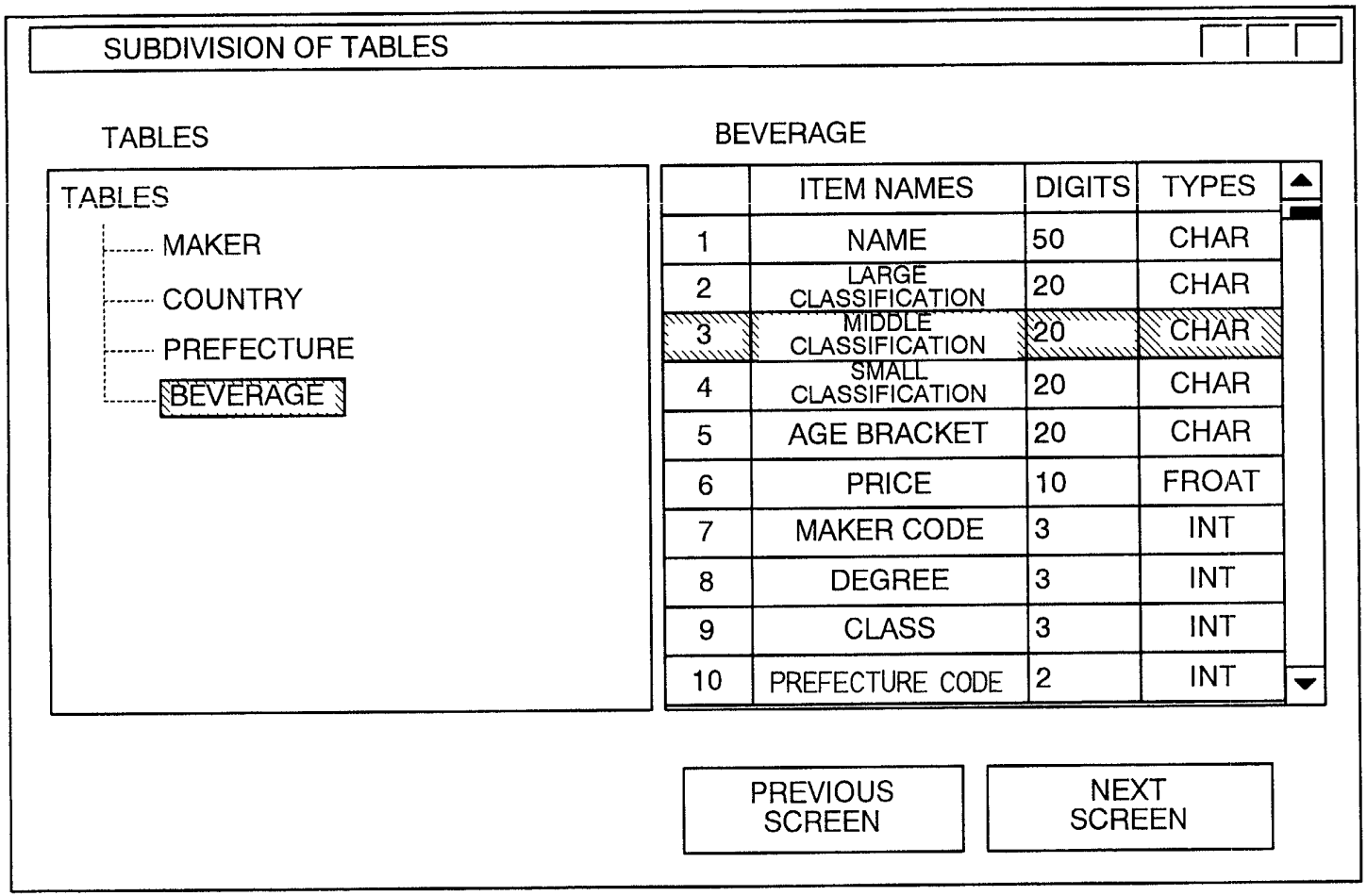
SUBDIVISION OF TABLES
TABLES
TABLES
MAKER
COUNTRY
PREFECTURE
BEVERAGE
BEVERAGE
ITEM NAMES
DIGITS
TYPES
1 NAME 50 CHAR
2 LARGE CLASSIFICATION 20 CHAR
3 MIDDLE CLASSIFICATION 20 CHAR
4 SMALL CLASSIFICATION 20 CHAR
5 AGE BRACKET 20 CHAR
6 PRICE 10 FROAT
7 MAKER CODE 3 INT
8 DEGREE 3 INT
9 CLASS 3 INT
10 PREFECTURE CODE 2 INT
PREVIOUS SCREEN
NEXT SCREEN

Fig. 7

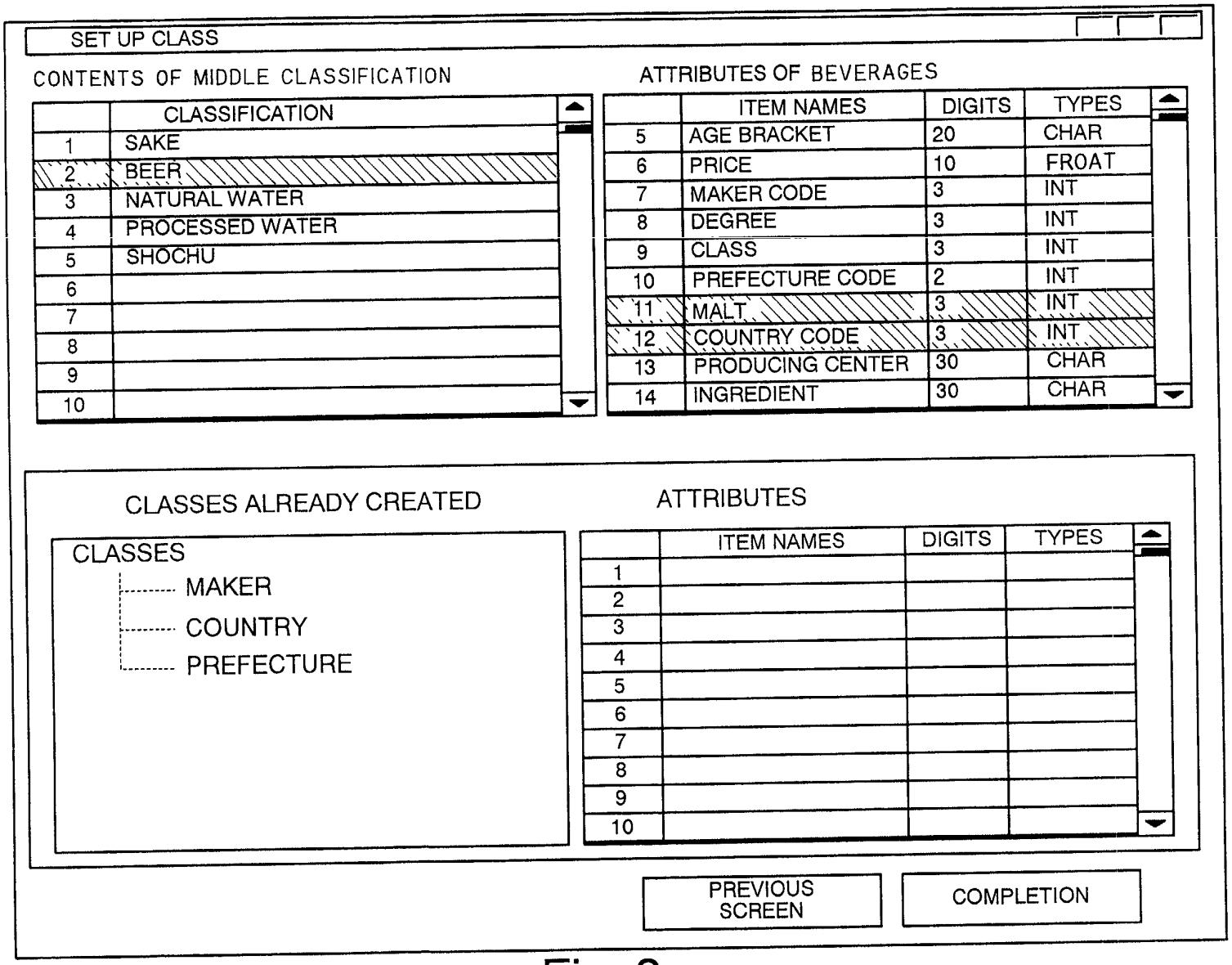
SET UP CLASS
CONTENTS OF MIDDLE CLASSIFICATION
CLASSIFICATION
1 SAKE
2 BEER
3 NATURAL WATER
4 PROCESSED WATER
5 SHOCHU
6
7
8
9
10
ATTRIBUTES OF BEVERAGES
ITEM NAMES | DIGITS | TYPES
5 AGE BRACKET | 20 | CHAR
6 PRICE | 10 | FROAT
7 MAKER CODE | 3 | INT
8 DEGREE | 3 | INT
9 CLASS | 3 | INT
10 PREFECTURE CODE | 2 | INT
11 MALT | 3 | INT
12 COUNTRY CODE | 3 | INT
13 PRODUCING CENTER | 30 | CHAR
14 INGREDIENT | 30 | CHAR
CLASSES ALREADY CREATED
CLASSES
MAKER
COUNTRY
PREFECTURE
ATTRIBUTES
ITEM NAMES | DIGITS | TYPES
1
2
3
4
5
6
7
8
9
10
PREVIOUS SCREEN
COMPLETION

Fig. 8

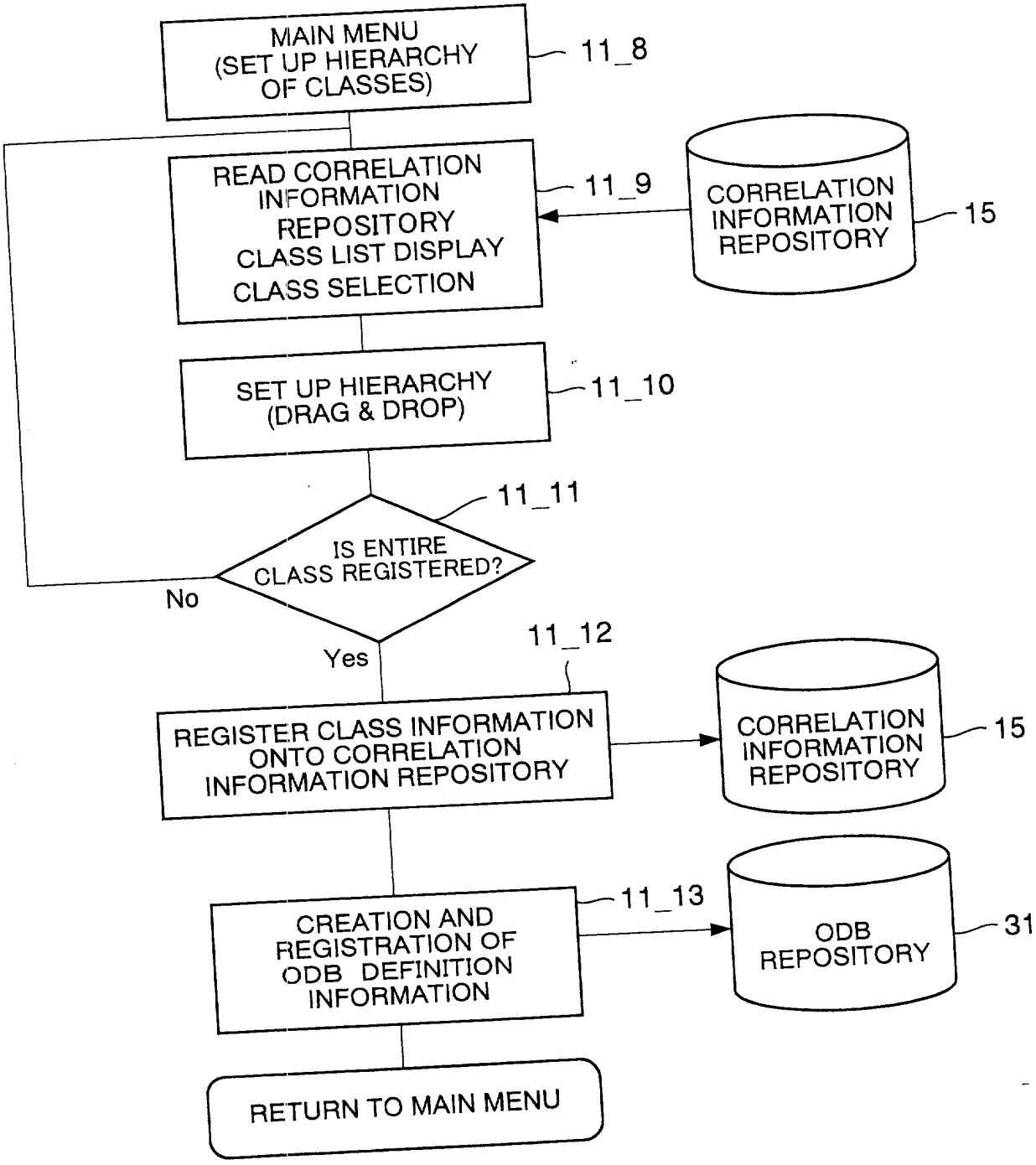
MAIN MENU
(SET UP HIERARCHY OF CLASSES)
11_8
READ CORRELATION INFORMATION REPOSITORY
CLASS LIST DISPLAY
CLASS SELECTION
11_9
CORRELATION INFORMATION REPOSITORY
15
SET UP HIERARCHY (DRAG & DROP)
11_10
11_11
IS ENTIRE CLASS REGISTERED?
No
Yes
11_12
REGISTER CLASS INFORMATION ONTO CORRELATION INFORMATION REPOSITORY
CORRELATION INFORMATION REPOSITORY
15
11_13
CREATION AND REGISTRATION OF ODB DEFINITION INFORMATION
ODB REPOSITORY
31
RETURN TO MAIN MENU

Fig. 9

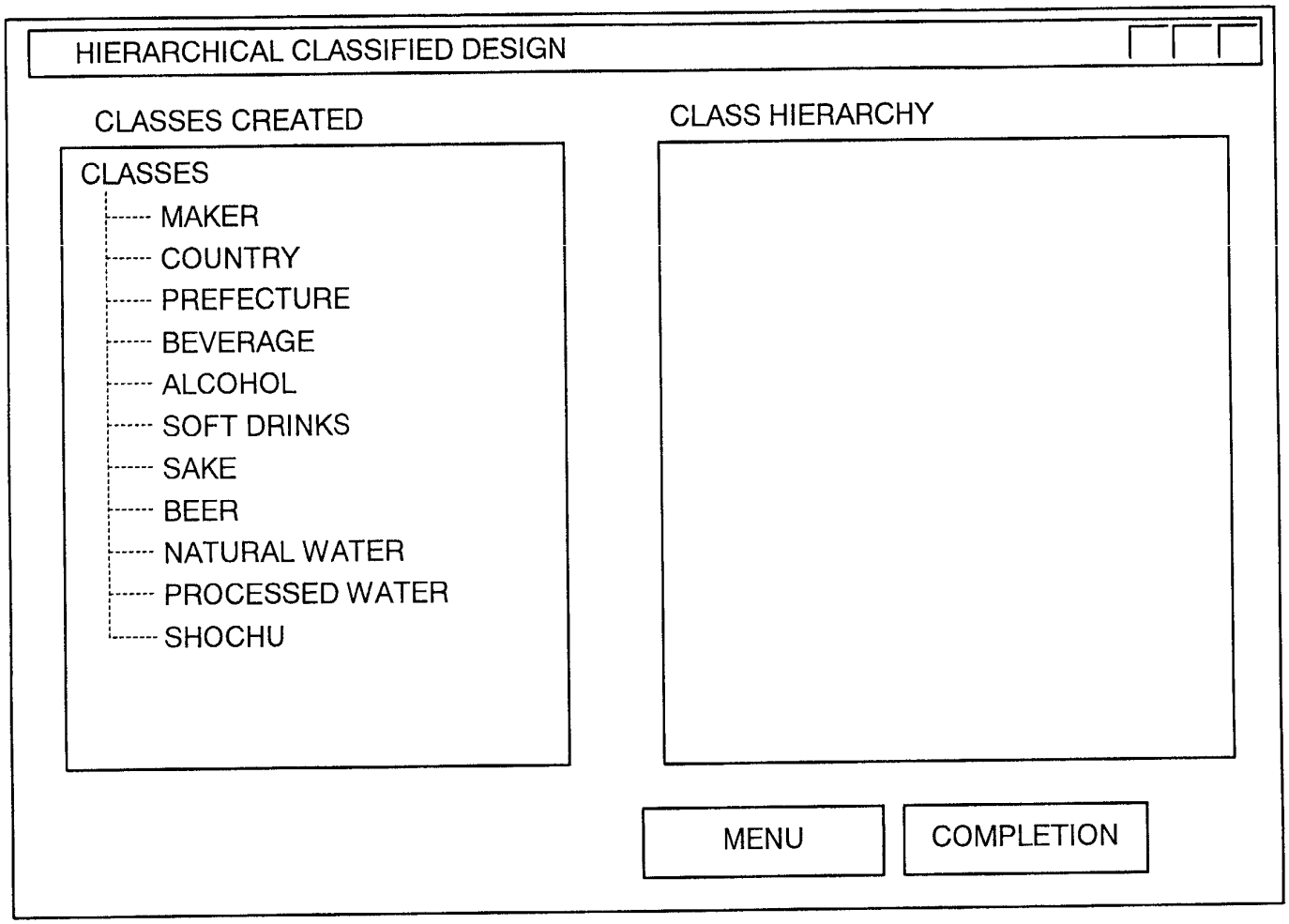
HIERARCHICAL CLASSIFIED DESIGN
CLASSES CREATED
CLASSES
MAKER
COUNTRY
PREFECTURE
BEVERAGE
ALCOHOL
SOFT DRINKS
SAKE
BEER
NATURAL WATER
PROCESSED WATER
SHOCHU
CLASS HIERARCHY
MENU
COMPLETION

Fig. 10

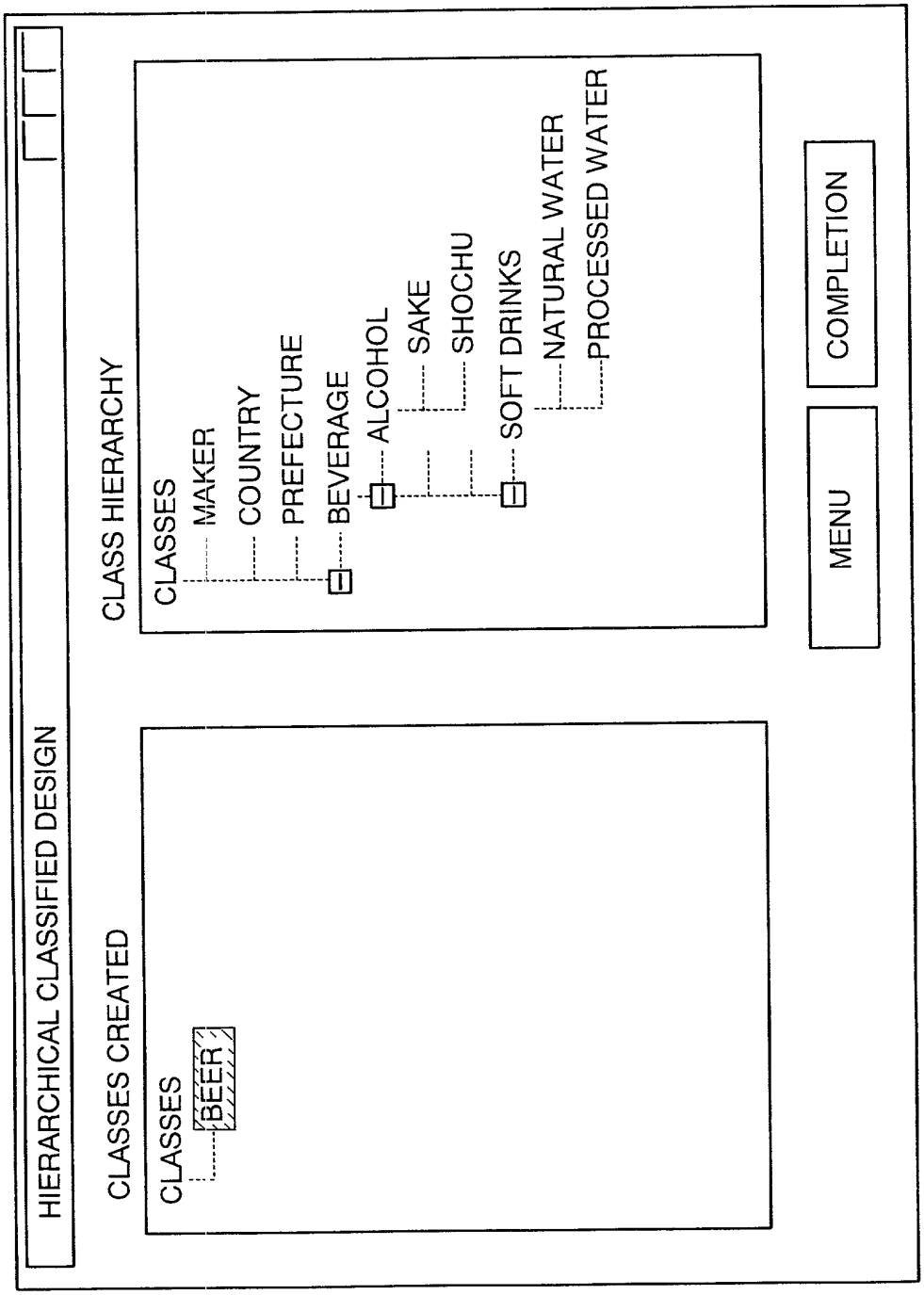
HIERARCHICAL CLASSIFIED DESIGN
CLASSES CREATED
CLASSES
BEER
CLASS HIERARCHY
CLASSES
MAKER
COUNTRY
PREFECTURE
BEVERAGE
ALCOHOL
SAKE
SHOCHU
SOFT DRINKS
NATURAL WATER
PROCESSED WATER
MENU
COMPLETION

Fig. 11

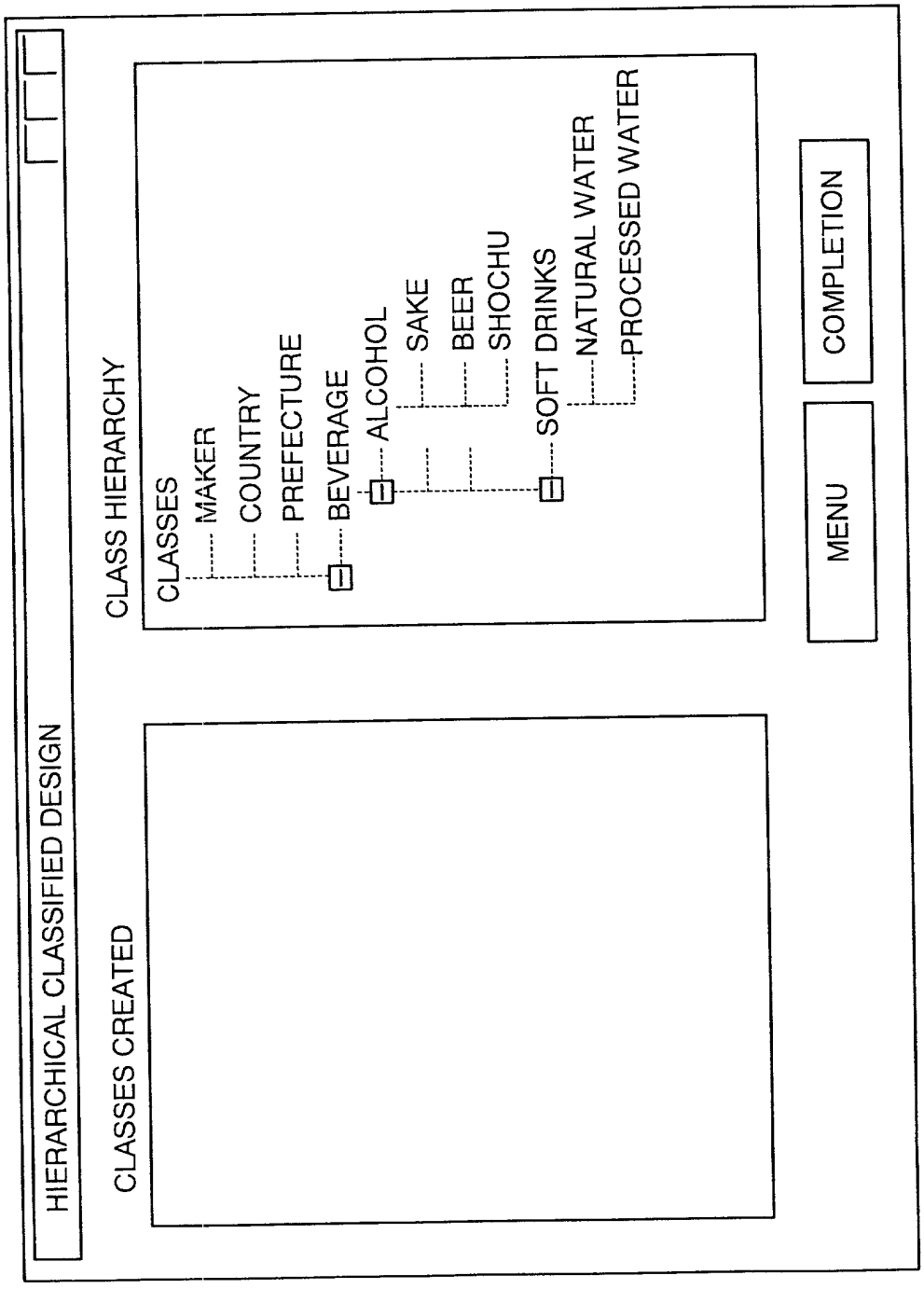
HIERARCHICAL CLASSIFIED DESIGN
CLASSES CREATED
CLASS HIERARCHY
CLASSES
MAKER
COUNTRY
PREFECTURE
BEVERAGE
ALCOHOL
SAKE
BEER
SHOCHU
SOFT DRINKS
NATURAL WATER
PROCESSED WATER
MENU
COMPLETION

Fig. 12

DATABASE NAMES	CLASS NAMES	TABLE NAMES	ATTRIBUTES NAMES	ITEM NAMES
CLASS	MAKER	MAKER	MAKER CODE	MAKER CODE
CLASS	MAKER	MAKER	MAKER NAME	MAKER NAME
CLASS	MAKER	MAKER	ADDRESS	ADDRESS
CLASS	BEER	BEVERAGE	MALT	MALT
CLASS	BEER	BEVERAGE	COUNTRY CODE	COUNTRY CODE

INDEXES	HIERARCHY	SUBDIVISION CONDITIONS
YES	1	
NO	1	
NO	1	
NO	3-1-2	MIDDLE CLASSIFICATIONS='BEER'
YES	3-1-2	MIDDLE CLASSIFICATIONS='BEER'

Fig. 13

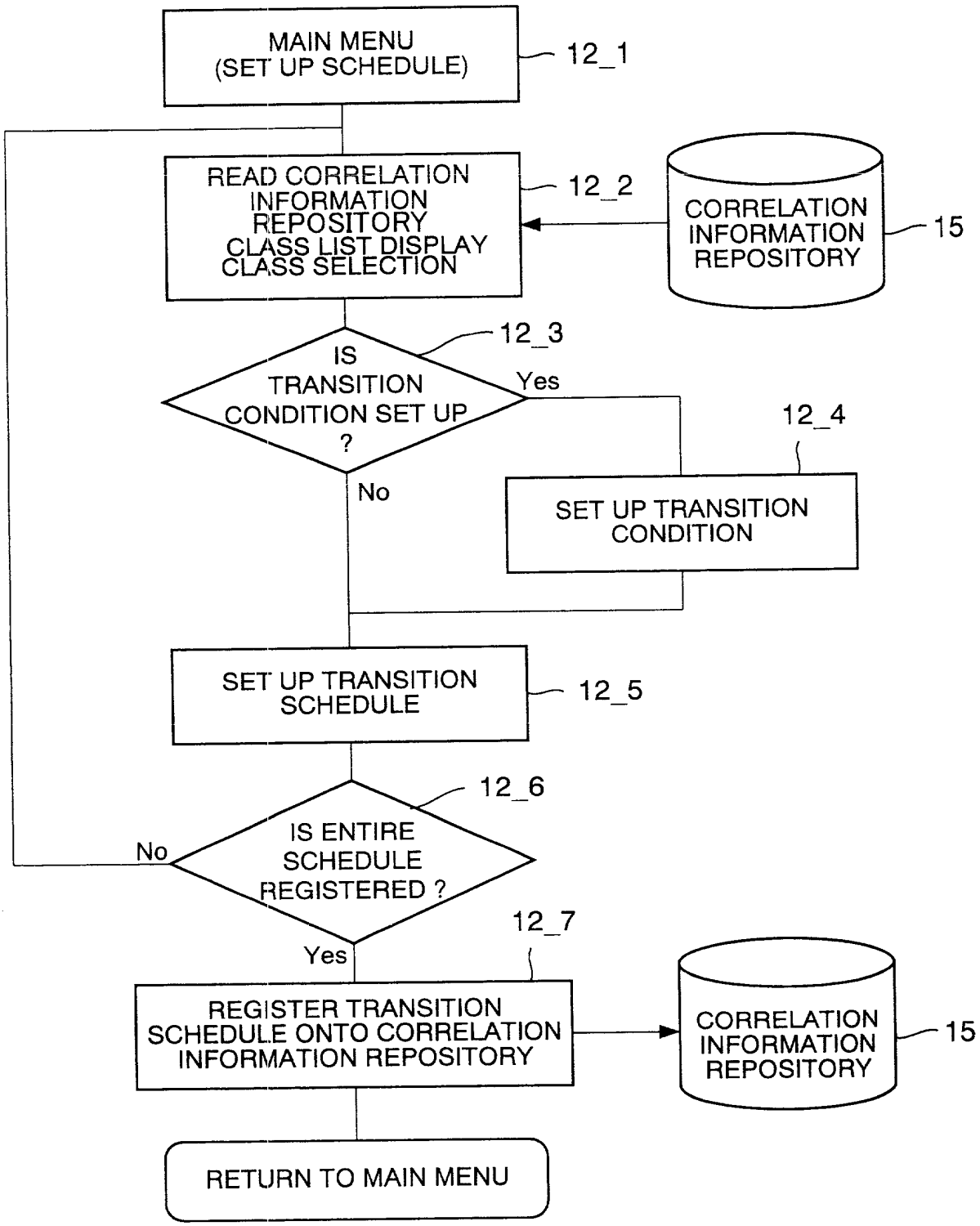
MAIN MENU
(SET UP SCHEDULE)
12_1
READ CORRELATION INFORMATION REPOSITORY CLASS LIST DISPLAY CLASS SELECTION
12_2
CORRELATION INFORMATION REPOSITORY
15
IS TRANSITION CONDITION SET UP ?
12_3
Yes
No
12_4
SET UP TRANSITION CONDITION
SET UP TRANSITION SCHEDULE
12_5
IS ENTIRE SCHEDULE REGISTERED ?
12_6
No
Yes
12_7
REGISTER TRANSITION SCHEDULE ONTO CORRELATION INFORMATION REPOSITORY
CORRELATION INFORMATION REPOSITORY
15
RETURN TO MAIN MENU

Fig. 14

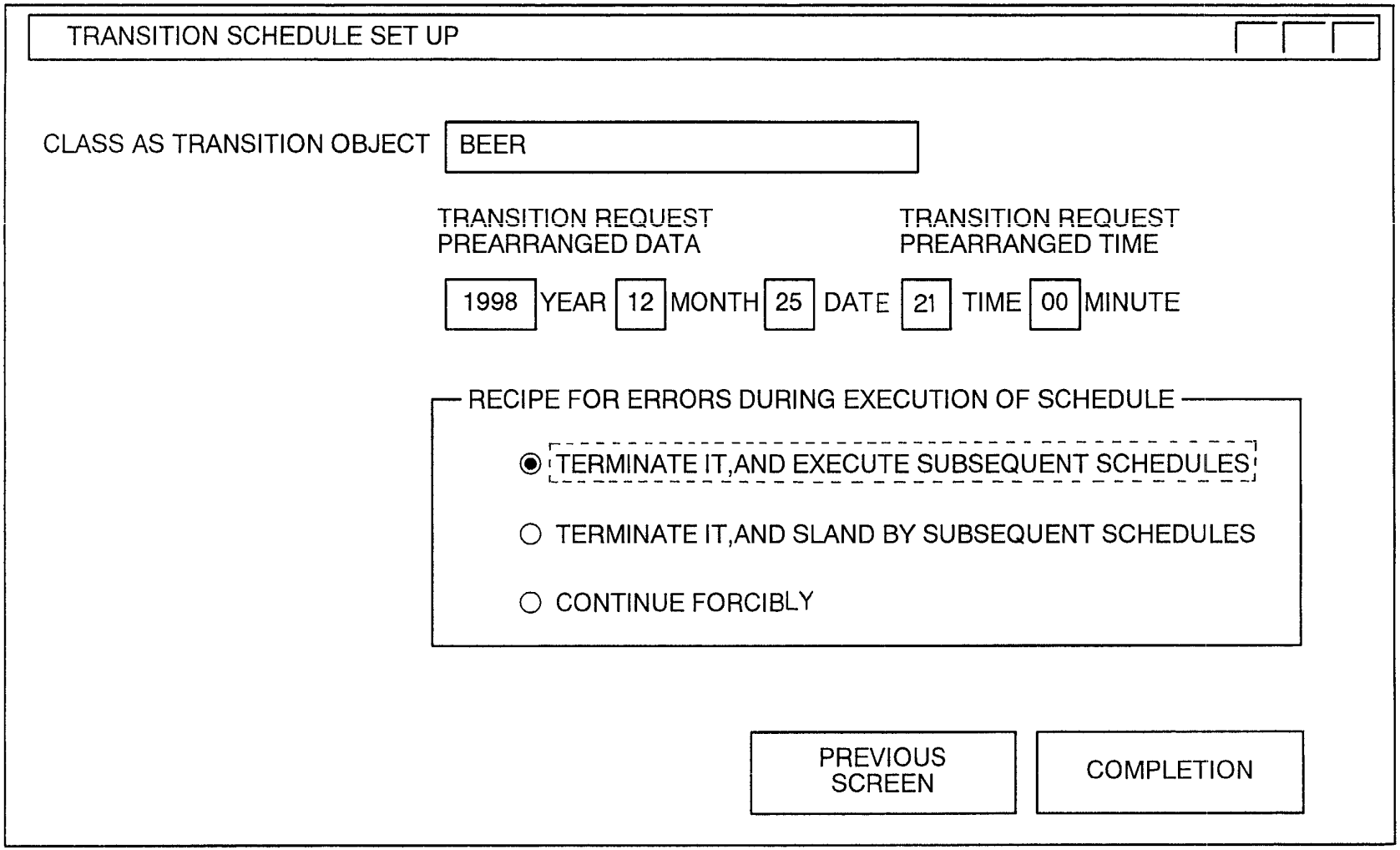
TRANSITION SCHEDULE SET UP
CLASS AS TRANSITION OBJECT
BEER
TRANSITION REQUEST PREARRANGED DATA
TRANSITION REQUEST PREARRANGED TIME
1998 YEAR 12 MONTH 25 DATE 21 TIME 00 MINUTE
RECIPE FOR ERRORS DURING EXECUTION OF SCHEDULE
TERMINATE IT,AND EXECUTE SUBSEQUENT SCHEDULES
TERMINATE IT,AND SLAND BY SUBSEQUENT SCHEDULES
CONTINUE FORCIBLY
PREVIOUS SCREEN
COMPLETION

Fig. 15

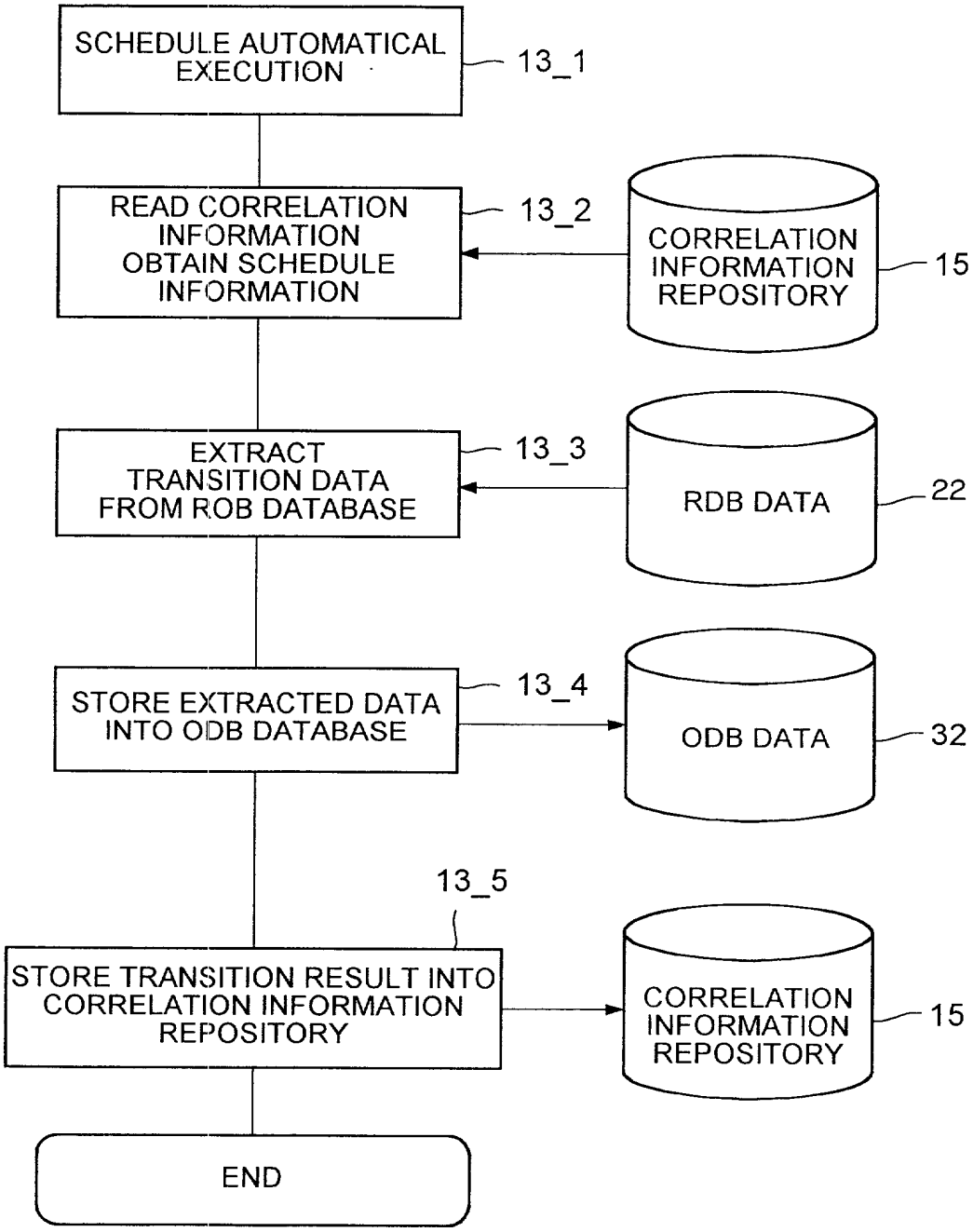
SCHEDULE AUTOMATICAL EXECUTION
13_1
READ CORRELATION INFORMATION OBTAIN SCHEDULE INFORMATION
13_2
CORRELATION INFORMATION REPOSITORY
15
EXTRACT TRANSITION DATA FROM ROB DATABASE
13_3
RDB DATA
22
STORE EXTRACTED DATA INTO ODB DATABASE
13_4
ODB DATA
32
13_5
STORE TRANSITION RESULT INTO CORRELATION INFORMATION REPOSITORY
CORRELATION INFORMATION REPOSITORY
15
END

Fig. 16

SCHEDULE EXECUTION SITUATION INQUIRY

	CLASS NAME	EXECUTION DATES	EXECUTION TIMES	STATES	RESULT INFORMATION
1	COUNTRY	1998/12/25	18:00	COMPLETION	NORMAL END
2	PREFECTURE	1998/12/25	18.30	COMPLETION	ERROR
3	BEVERAGE	1998/12/25	19.00	IN EXECUTION	
4	ALCOHOL	1998/12/25	19:30	NOT YET EXECUTION	
5	SOFT DRINKS	1998/12/25	20:00	NOT YET EXECUTION	
6	SAKE	1998/12/25	20:30	NOT YET EXECUTION	
7	BEER	1998/12/25	21:00	NOT YET EXECUTION	
8	NATURAL WATER	1998/12/25	21:30	NOT YET EXECUTION	
9	PROCESSED WATER	1998/12/25	22:00	NOT YET EXECUTION	
10	SHOCHU	1998/12/25	22:30	NOT YET EXECUTION	
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

MENU

Fig. 17

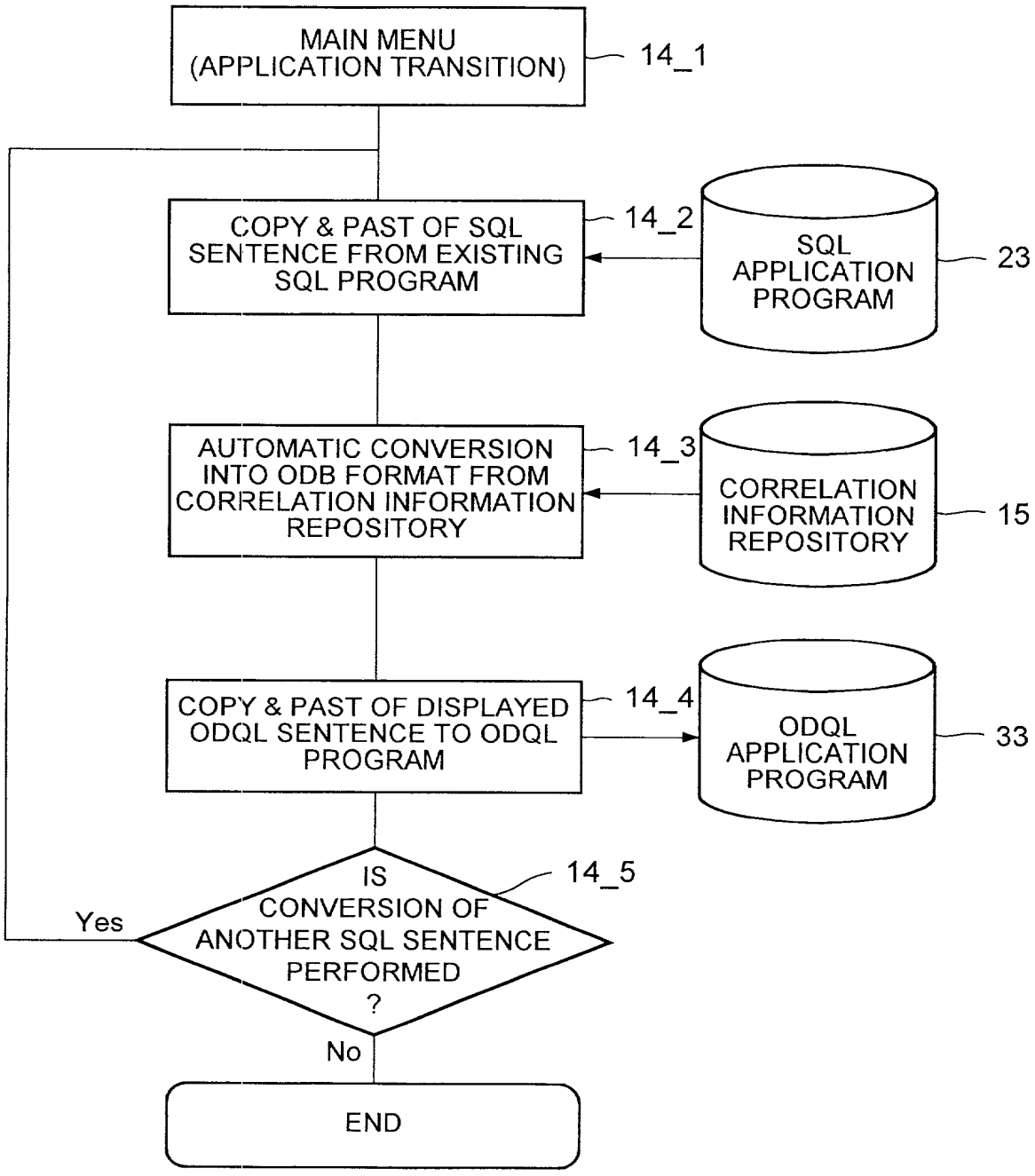
MAIN MENU
(APPLICATION TRANSITION)
14_1
COPY & PAST OF SQL SENTENCE FROM EXISTING SQL PROGRAM
14_2
SQL APPLICATION PROGRAM
23
AUTOMATIC CONVERSION INTO ODB FORMAT FROM CORRELATION INFORMATION REPOSITORY
14_3
CORRELATION INFORMATION REPOSITORY
15
COPY & PAST OF DISPLAYED ODQL SENTENCE TO ODQL PROGRAM
14_4
ODQL APPLICATION PROGRAM
33
IS CONVERSION OF ANOTHER SQL SENTENCE PERFORMED ?
14_5
Yes
No
END

Fig. 18

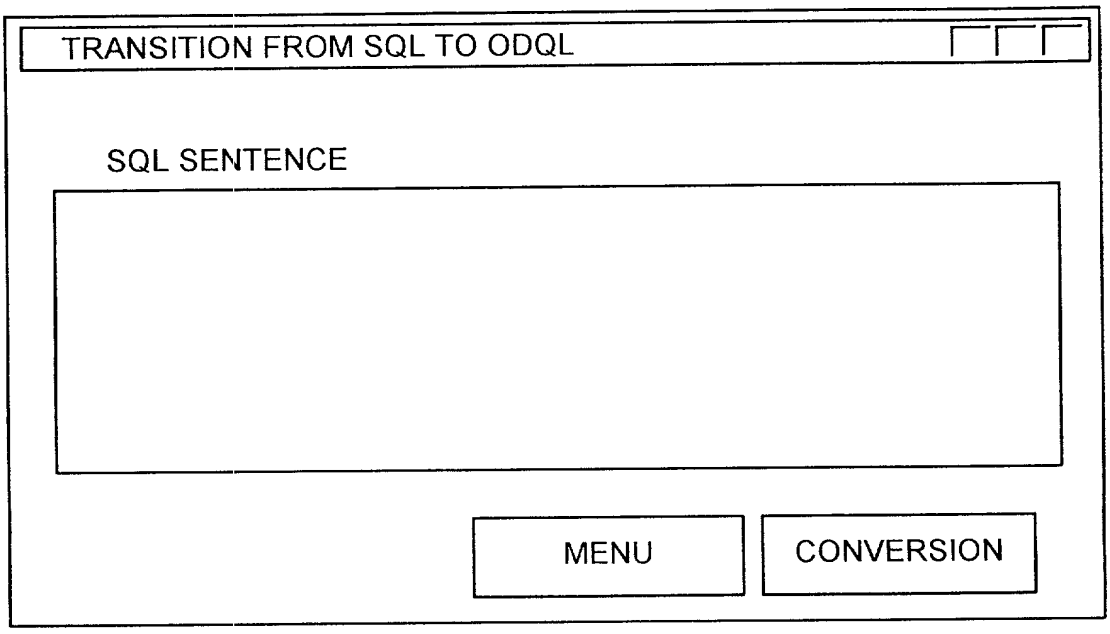

Fig. 19

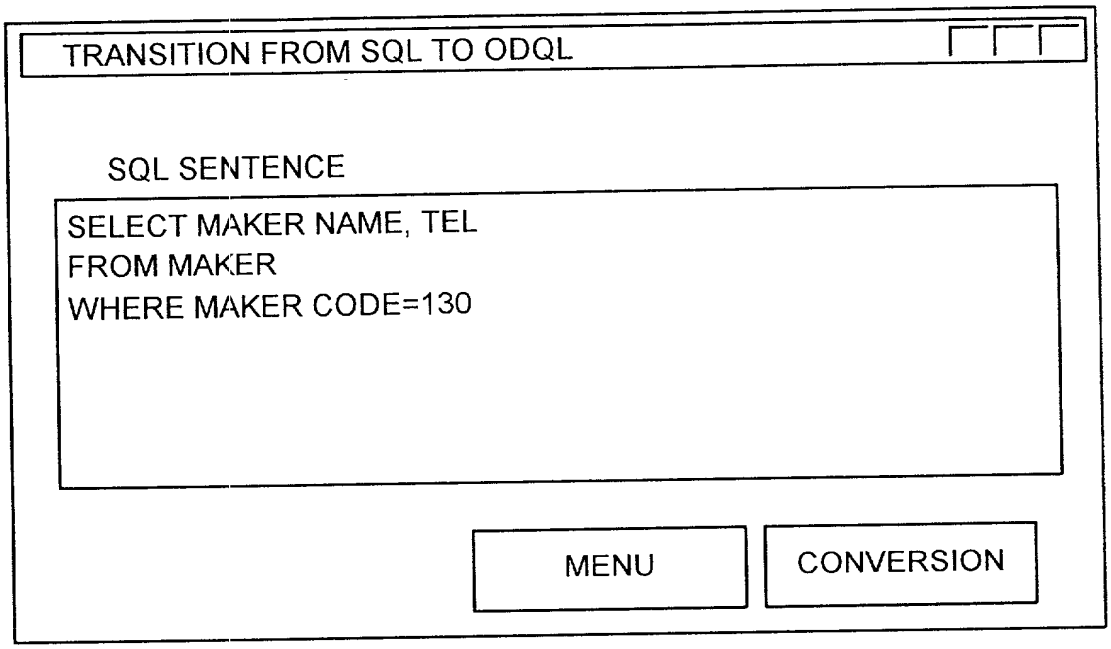
TRANSITION FROM SQL TO ODQL
SQL SENTENCE
SELECT MAKER NAME, TEL
FROM MAKER
WHERE MAKER CODE=130
MENU
CONVERSION

Fig. 20

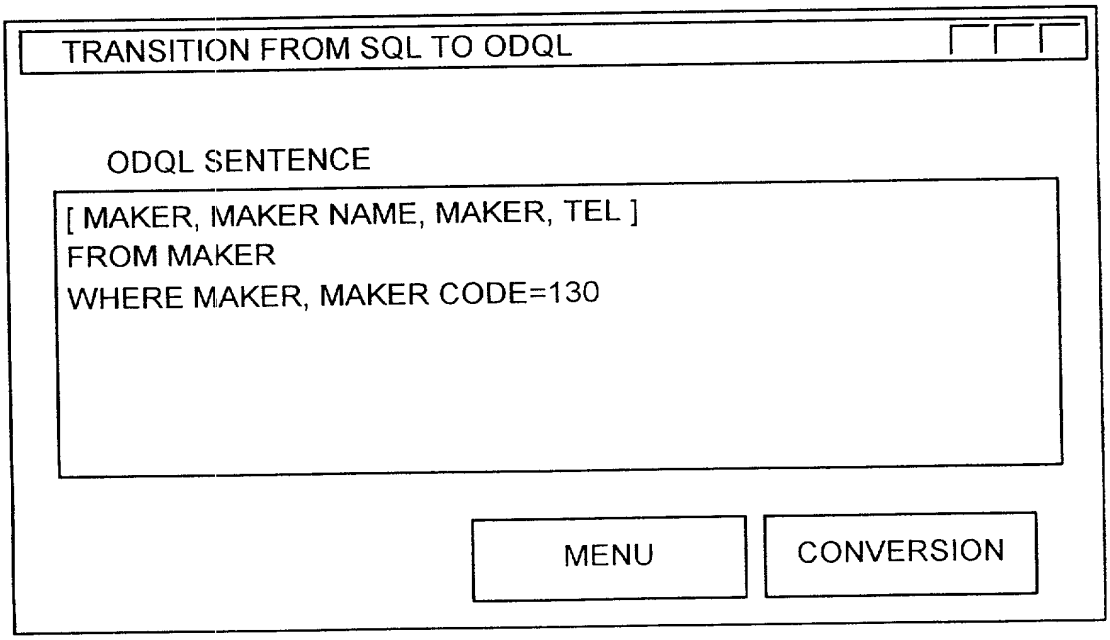
TRANSITION FROM SQL TO ODQL
ODQL SENTENCE
[MAKER, MAKER NAME, MAKER, TEL]
FROM MAKER
WHERE MAKER, MAKER CODE=130
MENU
CONVERSION

Fig. 21

(a)

MAKER

MAKER CODES	MAKER NAMES	HEAD OFFICES	FOUNDING YEARS	ANNUAL SALES
001	KARYN	TOKYO-TO	1930	1200 HUNDRED MILLION
002	YONTORY	OSAKA- FU	1915	860 HUNDRED MILLION
003	YUHI	TOKYO-TO	1896	1130 HUNDRED MILLION
004	HAKODATE	TOKYO-TO	1967	680 HUNDRED MILLION
005	COCA-COLA	AICHI- KEN	1980	2300 HUNDRED MILLION

(b)

BEVERAGE

NAME	LARGE CLASSIFICATIONS	MIDDLE CLASSIFICATIONS	SMALL CLASSIFICATIONS	AGE BRACKETS	PRICES	MAKER CODE
KARYN TANREI	ALCOHOL	BEER	BOTTLE	30'S	300	001
KOKEN NO IWASHIMIZU	SOFT DRINKS	NATURAL WATER	CAN	10'S	120	012
MIZUMIZUSHII MIZU	SOFT DRINKS	PROCESSED WATER	PET BOTTLE	20'S	150	004
RAKER	ALCOHOL	BEER	CAN	20'S	220	001
ETSU NO KANBAI	ALCOHOL	SAKE	BOTTLE	40'S	1300	002

DEGREES	CLASSES	PREFECTURE CODE	MOLTS	COUNTRY CODE
20			15%	002
		003		
		007		003
10			20%	
35	1	010		

Fig. 22

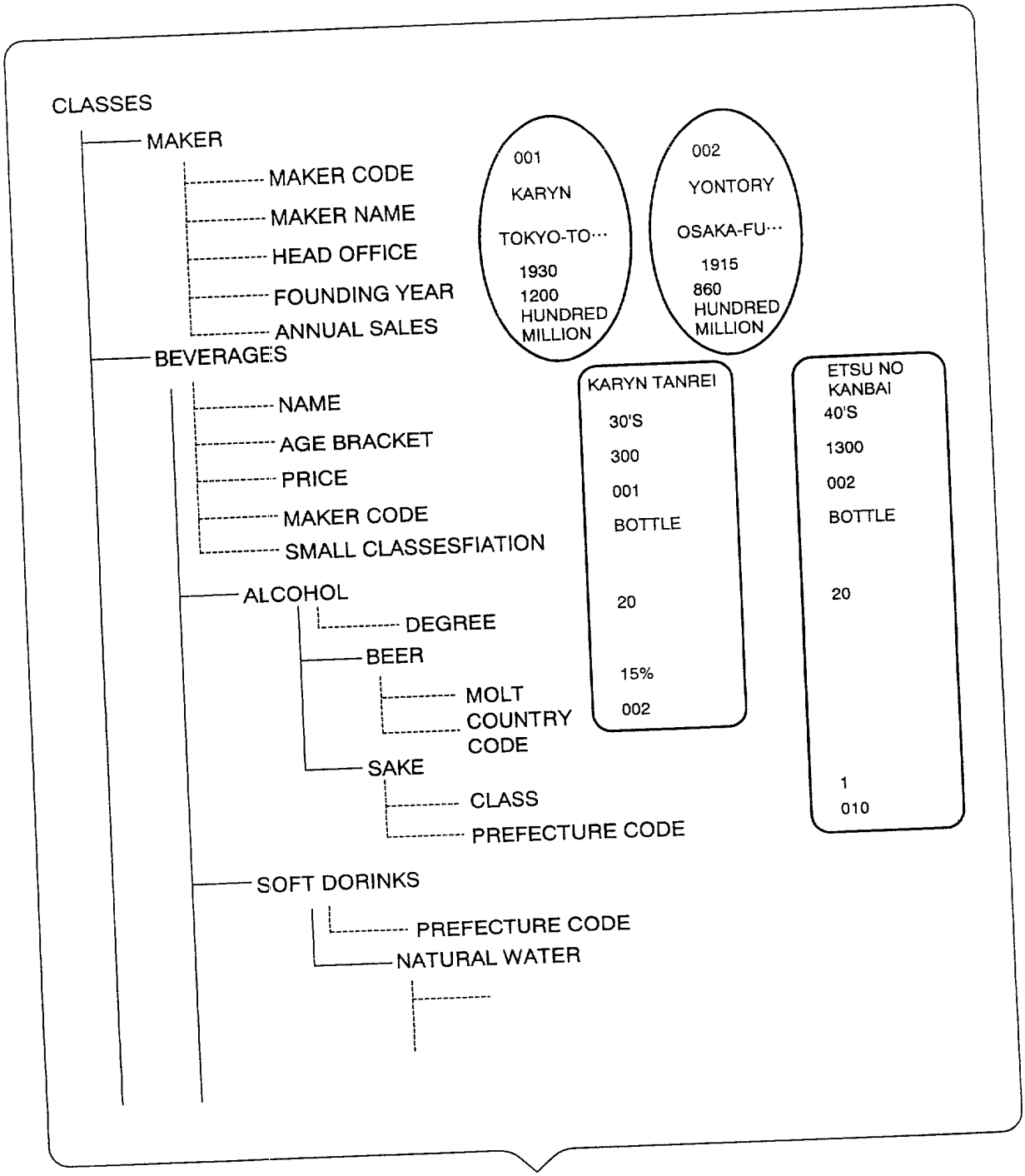
CLASSES
MAKER
MAKER CODE
MAKER NAME
HEAD OFFICE
FOUNDING YEAR
ANNUAL SALES
001
KARYN
TOKYO-TO···
1930
1200
HUNDRED
MILLION
002
YONTORY
OSAKA-FU···
1915
860
HUNDRED
MILLION
BEVERAGES
NAME
AGE BRACKET
PRICE
MAKER CODE
SMALL CLASSESFIATION
KARYN TANREI
30'S
300
001
BOTTLE
ETSU NO
KANBAI
40'S
1300
002
BOTTLE
ALCOHOL
DEGREE
BEER
MOLT
COUNTRY
CODE
20
15%
002
20
SAKE
CLASS
PREFECTURE CODE
1
010
SOFT DORINKS
PREFECTURE CODE
NATURAL WATER

Fig. 23